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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,599	02/18/2004	Masatoshi Hizuka	KAW-317-USAP	1017

7590 01/10/2006

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Washington, DC 20038-7613

EXAMINER
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LYONS, MICHAEL A

ART UNIT	PAPER NUMBER
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2877

DATE MAILED: 01/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/779,599

Applicant(s)

HIZUKA ET AL.

Examiner

Michael A. Lyons

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☒ Claim(s) 7-10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>042804</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

Claim 1 is objected to because of the following informalities: the language in the "optical member mounting device" clause of the claim is clumsy and difficult to easily understand. While the portion of the claim is not indefinite, the clumsy language makes it difficult to easily discern what is being explicitly claimed. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

**Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Regarding claim 3, the phrase "like" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d). It is unclear whether the mounting device is a plate, or some other object similar to a plate.

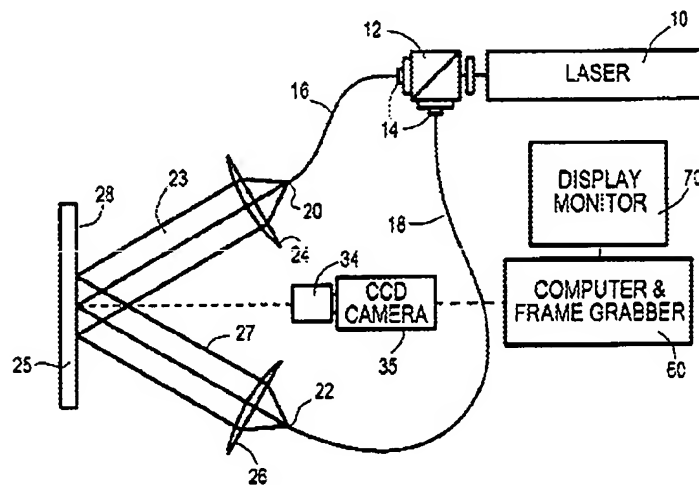
### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cloud (6,188,482) as best understood by the examiner.**



Regarding claims 1 and 3, Cloud (Fig. 1) discloses a speckle interferometer apparatus comprising a luminous flux dividing device in the form of beamsplitter 12 for dividing the luminous flux from light source 10 into two luminous fluxes, two luminous flux outputting devices in the form of fibers 16 and 18 that output light at ends 20 and 22, respectively, towards the rough surface 25 to be measured, and an imaging device in the form of lens 34 and CCD

camera 35 to capture images of the interference speckle pattern generated by light reflecting off the surface to be measured.

Cloud fails to explicitly disclose an optical member mounting device on which the light output devices are mounted and through which the camera observes the interference images.

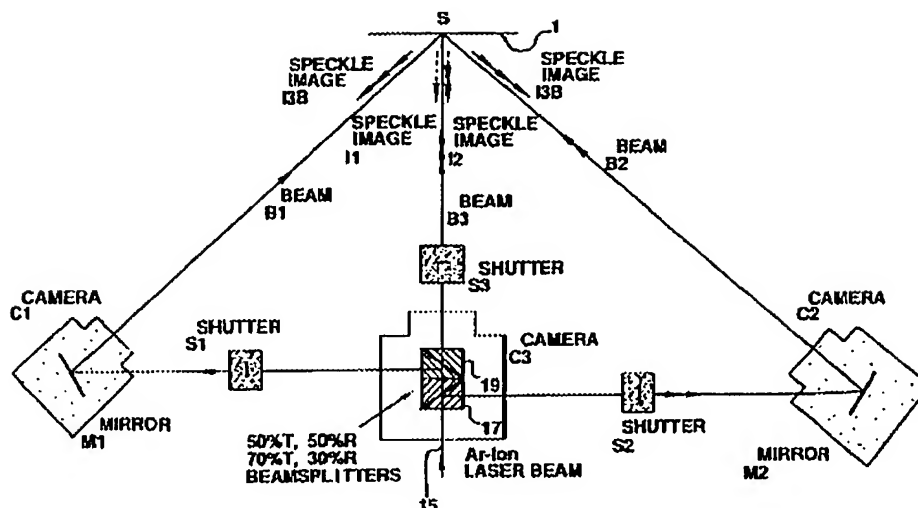
The pieces of an interferometric apparatus, however, must be attached or placed on a stable surface in order to prevent the shift of the elements of the apparatus during operation so that precise measurements may be made. Since the elements in the device are arranged two-dimensionally, a flat plate mounting device serves as the simplest mounting arrangement (claim 3).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to mount the light output devices of Cloud on an explicit optical member mount with the imaging device between the output devices, the motivation being that such a mounting arrangement will provide for a smaller, more compact apparatus while maintaining stability of the elements of the device for accurate measurements.

As for claim 2, there is a predetermined optical path length difference between the optical paths due to the differing lengths of fibers 16 and 18 in the Cloud apparatus (see figure above).

As for claims 4-5, the light output devices of Cloud are disposed so that they oppose each other across the light-transmitting area; they come in at equal and opposite angles that are orthogonal to one another (claim 5) on each side of the imaging device.

**Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cloud (6,188,482) in view of Sarrafzadeh-Khoei (6,097,477).**



As for claim 6, Cloud discloses the invention as claimed above with regards to claims 1 and 5, but fails to disclose the ability to regulate the device so that light can be received by the measuring object by either one of the outputting devices individually.

Sarrafzadeh-Khoei (Fig. 5) discloses the use of shutters S1, S2, and S3; these shutters block off the light of the desired beam path so that the light beam from any of the outputs may be singularly used while the others are blocked off in a given, predetermined pattern.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to add shutters to the device of Cloud as per Sarrafzadeh-Khoei, the motivation being that the shutters provide an easy, efficient way to control the device so that only light from a desired output strikes the measurement object.

### *Allowable Subject Matter*

**Claims 7-10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.**

The following is a statement of reasons for the indication of allowable subject matter:

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As to claims 7-10, the prior art of record, taken either alone or in combination, fails to disclose or render obvious the explicit construction of the optical member mounting device, in combination with the rest of the limitations of the above claims.

***Conclusion***

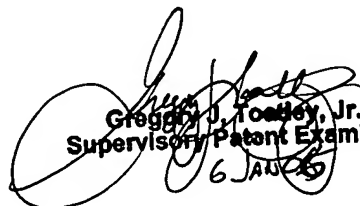
The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Pat. 5,231,468 to Deason et al., and US Pat. 6,417,916 to Dengler et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Lyons whose telephone number is 571-272-2420. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley can be reached on 571-272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MAL  
January 5, 2006

  
Gregory J. Toatley, Jr.  
Supervisory Patent Examiner  
6 JAN 2006